



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,480	05/10/2005	Thomas Durbaum	DE 020261	7009

65913	7590	06/27/2007
NXP, B.V. NXP INTELLECTUAL PROPERTY DEPARTMENT M/S41-SJ 1109 MCKAY DRIVE SAN JOSE, CA 95131		

EXAMINER	
PHAM, EMILY P	

ART UNIT	PAPER NUMBER
2809	

NOTIFICATION DATE	DELIVERY MODE
06/27/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

Office Action Summary	Application No.	Applicant(s)	
	10/534,480	DURBAUM ET AL.	
	Examiner	Art Unit	
	Emily P. Pham	2809	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 5/10/2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 May 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>5/10/2005 & 10/12/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statements (IDS) submitted on May 10, 2005 and Oct 12, 2006 are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statements are being considered by the examiner.

Specification

2. The abstract of the disclosure is objected to because it has grammatical error: "...it is proposed that an additional current path 11, 12 is arranged in parallel..."

Correction is required. See MPEP § 608.01(b).

3. The disclosure is objected to because of the following informalities:
 - "The principle of multiphase converters allows to reduce the output voltage ripple under steady state conditions." (page 1, line 24); according to English grammar a gerund should be used after "allow".
 - "The proposed transient shunt allows to minimize the number of output capacitors ..." (page 3, lines 9, 10); according to English grammar a gerund should be used after "allow".
 - "FIG. 3 is a circuit diagram of a second embodiment of a buck converter according to the invention using a low impedance path as additional current path ..." (page 4, line 23) is misspelled.
 - "FIG. 4 is a circuit diagram of a third embodiment of a buck converter according to the invention using a low impedance path as additional current path ..." (page 4, line 26) is misspelled.
 - "According to the invention, an additional current path 11, 12 is provided in parallel to the inductor 6 and/or in parallel to the capacitor

Art Unit: 2809

7. The additional current path 11, 12 is opened, whenever a load connected to the output capacitor 7 is turned off." (page 5, lines 15-17) should be in plural.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Regarding independent claim 1:
Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is obscure what is characterized.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:
A person shall be entitled to a patent unless –
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
7. Claims 1, 2, 3, 4, 7, 8, 9, and 10 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Stratakos et al. (U.S. Patent 6,271,651).
8. Regarding independent claim 1:
Claim 1 is examined based on the assumption of the examiner that the

Art Unit: 2809

power converter is characterized by an additional current path arranged in parallel to one of said inductor.

Stratakos et al. disclose power converter comprising an inductor for receiving energy from a power supply (FIG. 1, item 120; column 4, lines 21-23), and connected to said inductor an output capacitor for providing an output voltage (FIG. 1, item 122; column 4, lines 21-23), characterized by an additional current path arranged in parallel to of said inductor (FIG. 1), which additional current path can be opened and closed (FIG. 1, item 132; column 4, lines 31-34); and feedback means for opening said additional current path, when said output voltage across said output capacitor reaches a predetermined maximum value (column 5, lines 37-52).

9. Regarding dependent claim 2:

Stratakos et al. disclose power converter, wherein said additional current path comprises a controllable current source (FIG. 1, item 132; column 4, lines 31-34; column 5, lines 37-38).

10. Regarding dependent claim 3:

Stratakos et al. disclose power converter, wherein said additional current path is a low impedance path (column 5, lines 4-6).

11. Regarding dependent claim 4:

Stratakos et al. disclose power converter, wherein said low impedance path comprises a resistor (FIG. 1, item 132; column 4, lines 31-34; column 5, lines 37-38).

12. Regarding dependent claim 7:

Stratakos et al. disclose a power converter, wherein said feedback means control an opened additional current path based on said output voltage (column 4, lines 40-67; column 5, lines 1-52).

13. Regarding dependent claim 8:

Stratakos et al. disclose a power converter, wherein said feedback means control an opened additional current path based on a current through said inductor (column 4, lines 40-67; column 5, lines 1-52).

14. Regarding dependent claim 9:

Stratakos et al. disclose a power converter that is one out of a group of a buck converter, a boost converter and a buck/boost converter (column 2; lines 30-44; column 7, lines 20-24).

15. Regarding independent claim 10:

Stratakos et al. disclose structure for a method of controlling a power converter, the power converter includes an inductor for receiving energy from a power supply (FIG. 1, item 120; column 4, lines 21-23), and connected to said inductor an output capacitor for providing an output voltage (FIG. 1, item 122; column 4, lines 21-23), said method comprising opening a controllable additional current path arranged in parallel to one of said inductor and said capacitor (FIG. 1, items 132 and 124; column 4, lines 37-39), when said output voltage across said output capacitor reaches a predetermined maximum value, such that a respective desired current flows basically immediately through said additional current path (column 5; lines 1-36).

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2809

17. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stratakis et al. as applied to claim 1 above, and further in view of Moore et al. (U.S. Patent 5,889,392).

18. Regarding dependent claim 5:

Stratakis et al. do not disclose power converter, wherein said feedback means open said additional current path for a predetermined time.

Moore et al. disclose power converter, wherein said feedback means open said additional current path for a predetermined time (column 2, lines 26-54).

Stratakis et al. and Moore et al. teach the method to maintain a constant output voltage in the face of fast load transients with emphasizing on cost and size reduction. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine techniques taught by Stratakis et al. and Moore et al. to improve the power converter (Moore et al., column 1 and 2, Background of the Invention and Brief Summary of the Invention).

19. Regarding dependent claim 6:

Stratakis et al. do not disclose power converter, wherein said feedback means close an opened additional current path when a second predetermined output voltage is reached.

Moore et al. power converter, wherein said feedback means close an opened additional current path when a second predetermined output voltage is reached (column 2, lines 55-67; column 3, lines 1-25).

Stratakis et al. and Moore et al. teach the method to maintain a constant output voltage in the face of fast load transients with emphasizing on cost and size reduction. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine techniques taught by Stratakis et al. and Moore et al. to improve the power converter (Moore et al., column 1 and 2, Background of the Invention and Brief Summary of the Invention).

Art Unit: 2809

Allowable Subject Matter

20. No claim is allowed.

Conclusion

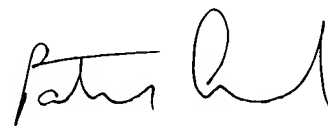
21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Eagar (U.S. Patent 6,051,963), Mammano et al. (U.S. Patent 5,422,562), Mao et al. (U.S. Patent 6,037,755), Chang (U.S. Patent 6,980,449).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emily P. Pham whose telephone number is (571) 270-3046. The examiner can normally be reached on 4/10.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Assouad can be reached on (571) 272-2210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

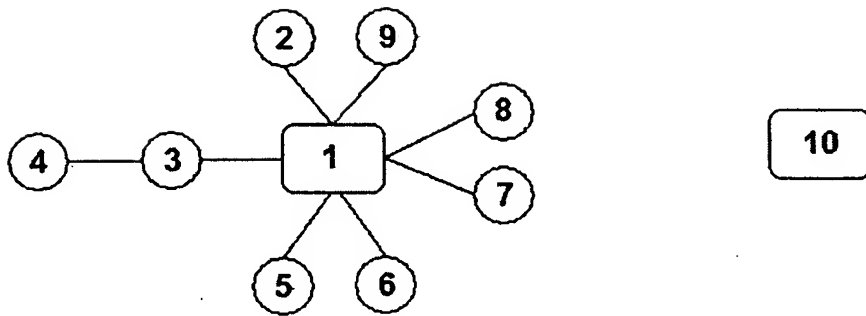
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Emily P. Pham
Patent Examiner
Art Unit 2809



**PATRICK ASSOUD
SUPERVISORY PATENT EXAMINER**

105344890



10

6750681

4959623

* Claims 5, 6, 7, 8: feedback means

5: predetermined time

6: 2nd predetermined output voltage

7: output voltage

8: current through inductor

Voltage ripple

buck - boost converter

load transient

Current source / sink

Variable Resistor \equiv Potentiometer (2 w in)
Voltage Divider